U.S.S.N. 09/658,390

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AMENDMENT AND RESPONSE TO RESTRICTION REQUIREMENT

H is the residue of a hydroxy carboxylic acid, a carbonic acid, or an amino acid, which is linked to K by an ester bond; and

K is the residue of an alcohol containing at least one carbon atom.

22. (Amended) The [monomer] material of claim 21 wherein

A is selected from the group consisting of acrylic, methacrylic crotonic, isocrotonic, tiglic, angelic, and cinnamic acids; maleic, fumaric, citraconic, mesaconic, itaconic, citric and isocitric acids, and monoesters and monoamides thereof, and mixtures thereof;

H is selected from the group consisting of glycolic acid, lactic acid, 3-hydroxy-propanoic acid, a hydroxybutyric acid, a hydroxypentanoic acid, hydroxy trimethylene carbonic acid, hydroxy ethylene carbonic acid, hydroxy propylene carbonic acid, hydrolyzed dioxanone [(i.e., 2-hydroxyethoxyacetic acid)], a hydroxyhexanoic acid, an alpha, beta or gamma amino acid of eight carbons or fewer, and mixtures thereof; and

K is an alcohol containing from 1 to about 10 carbon atoms and at least one hydroxyl group, or a mixture of such alcohols.

- 23. (Amended) The [monomer] <u>material</u> of claim 22 wherein A is selected from the group consisting of acrylic acid and methacrylic acid.
- 24. (Amended) The [monomer] <u>material</u> of claim 22 wherein H has one to about eight carbon atoms and is selected from the group consisting of glycolic acid, lactic acid, 3-hydroxy-propanoic acid, a hydroxybutyric acid, a hydroxypentanoic acid, and a hydroxyhexanoic acid.

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applying a crosslinked polymeric hydrogel material to the tissue or implant, wherein the

material has both hydrophilic and hydrophobic regions and is characterized as having the

following properties:

a) absorbing water to less than about 300% of its initial weight, on exposure to water

or bodily liquids;

b)

having a solids content of at least about 20% after equilibration in water or bodily

fluids;

c) having an elongation to failure of at least about 25% both as formed and after

swelling to equilibrium; and

d) being biocompatible;

wherein the material is formed by the crosslinking of reactive monomers and macromers

in the presence of tissue, and undergoes hydration with bodily liquids to form a water-containing

material.

Please add the following new claims.

38. (New) A composition for forming a water-absorbing, high modulus polymeric

material comprising at least one macromer and at least one monomer,

wherein the macromer comprises hydrophobic and hydrophilic regions and has a

molecular weight of 500 to 200,000 Da,

wherein the monomer contains at least one vinyl group and has a molecular weight of

less than 1,000 Da, and

wherein the monomer comprises at least 30% (wt/wt) of the composition.

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- 39. (New) The composition of claim 38, wherein the composition is in the form of a fluid or paste.
 - 40. (New) The composition of claim 38, further comprising water.
- 41. (New) The composition of claim 38, wherein the macromer is polyethyleneglycol-trimethylene carbonate-diacrylate.
- 42. (New) The composition of claim 38, wherein the monomer is selected from the group consisting of vinyl caprolactam, methyl acrylate, methyl methacrylate, styrene, N-vinyl pyrrolidone, and N-vinyl imidazole, diacetone acrylamide, vinyloxyethanol, 2-acrylamido-2-methylpropane, and methyl acryloyl lactate and mixtures and derivatives thereof.
- 43. (New) The composition of claim 38, wherein the macromer comprises up to 50% (wt/wt) of the formulation and the monomer comprises at least 45% (wt/wt) of the formulation.
- 44. (New) The composition of claim 43, further comprising less than 40% (wt/wt) water.
- 45. (New) The composition of claim 41, wherein the monomer is diacetone acrylamide.
 - 46. (New) The composition of claim 38,

wherein upon copolymerization of the macromer and monomer, a polymeric material is formed, wherein the material comprises hydrophobic and hydrophilic regions and is characterized as having the following properties:

a) absorbing water to less than about 300% of its initial weight, on equilibration with water or bodily liquids;

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b) having a solids content of at least about 20% after equilibration in water or bodily

liquids;

c) having an elongation to failure of at least about 25% hydration to equilibrium; and

d) being sufficiently biocompatible to permit the treatment or repair of biological

tissue, or used as an implant in a patient.

47. (New) The composition of claim 38, wherein the macromer has the formula

AHK, wherein:

A is a residue of an ethylenically unsaturated acid that is linked to H by a bond selected

from ester and amide;

H is the residue of a hydroxy carboxylic acid, a carbonic acid, or an amino acid, which is

linked to K by an ester bond; and

K is the residue of an alcohol containing at least one carbon atom.

48. (New) The composition of claim 47 wherein

A is selected from the group consisting of acrylic, methacrylic crotonic, isocrotonic,

tiglic, angelic, and cinnamic acids; maleic, fumaric, citraconic, mesaconic, itaconic, citric and

isocitric acids, and monoesters and monoamides thereof, and mixtures thereof;

H is selected from the group consisting of glycolic acid, lactic acid, 3-hydroxy-propanoic

acid, a hydroxybutyric acid, a hydroxypentanoic acid, hydroxy trimethylene carbonic acid,

hydroxy ethylene carbonic acid, hydroxy propylene carbonic acid, hydrolyzed dioxanone, a

hydroxyhexanoic acid, an alpha, beta or gamma amino acid of eight carbons or fewer, and

mixtures thereof; and